

**Maine State Prison
Knox County
Warren, Maine
A-808-71-B-M**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #1**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Maine State Prison (MSP) of Warren, Maine was issued Air Emission License A-808-71-A-N on January 2, 2001, permitting the operation of emission sources associated with their correctional institution.
2. MSP has requested a minor revision to their license in order to reduce the facility's licensed fuel limit.

B. Revision Description

MSP is licensed to operate four #2 fuel oil fired boilers as well as two emergency generators. Both the boilers and the generators draw fuel from the same tank. Currently MSP has a facility wide fuel limit of 2,234,000 gallons per year of #2 fuel oil. In 2002, MSP used approximately 400,000 gallons of #2 fuel oil. Based on this usage, MSP has proposed reducing the facility fuel limit to 804,000 gallons per year.

Additionally, MSP proposes lowering the operation limit on the emergency generators from 300 hours per year to 200 hours per year for each generator as well as revising the NO_x emission limits based on emission data from the manufacturer.

C. Application Classification

This amendment will not increase emissions of any regulated pollutant. Therefore, this modification is determined to be a minor revision and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Department regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emissions from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. Boilers

Boilers #1, #2, and #3 are Cleaver-Brooks boilers with a maximum heat input of 20.9 MMBtu/hr each. Boiler #4 is a Cleaver-Brooks boiler with a maximum heat input of 8.4 MMBtu/hr.

Boilers #1, #2, and #3 were manufactured in 2000 and have heat inputs greater than 10 MMBtu/hr each. These boilers are therefore subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units.

Boiler #4 has a heat input of less than 10 MMBtu/hr, and is therefore not subject to NSPS Subpart Dc for steam generating units.

A summary of the BPT analysis for Boilers #1, #2, and #3 (20.9 MMBtu/hr each) and Boiler #4 (8.4 MMBtu/hr) is the following:

1. The total fuel use for the facility shall not exceed 804,000 gal/year of #2 fuel oil, based on a 12 month rolling total, with a maximum sulfur content not to exceed 0.3% by weight.
2. MSP shall not fire more than two of Boilers #1, #2, or #3 simultaneously demonstrated by recordkeeping including firing dates and times for each boiler.
3. Chapter 106 regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.3% was appropriate and shall be used.
4. Chapter 103 regulates PM emission limits, however in this case a BPT analysis for PM determined a more stringent limit of 0.04 lb/MMBtu was

appropriate and shall be used. The PM₁₀ limits are derived from the PM limits.

5. NO_x emission limits are based on data from similar #2 fired boilers of this size and age.
6. CO and VOC emission limits are based upon AP-42 data dated 9/98.
7. Visible emissions from the boilers shall not exceed 20% opacity on a 6 minute block average.

C. Generators

MSP operates two back-up emergency generators.

“Emergency” is defined in Chapter 100 and throughout this document as: “... any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.”

These generators draw fuel from the same tank as the boilers. In order to do this they have accepted an operating restriction of 200 hours/year for each generator. A summary of the BPT analysis for Generators #1 and #2 (1500 kW each) is the following:

1. The generators shall fire #2 fuel oil with a maximum sulfur content not to exceed 0.3% by weight.
2. The emergency generators shall each be limited to 200 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written log of all generator operating hours.
3. Chapter 106 regulates fuel sulfur content, however in this case a BPT analysis for SO₂ determined a more stringent limit of 0.3% was appropriate and shall be used..
4. Chapter 103 regulates PM emission limits. The PM₁₀ limits are derived from the PM limits.
5. NO_x emission limits are based on data supplied from the manufacturer.
6. CO and VOC emission limits are based upon AP-42 data dated 10/96.
7. Visible emissions from the generators shall not exceed 20% opacity on a 6 minute block average, except for no more than 2 six minute block averages in a continuous 3 hour period.

D. Annual Emission Restrictions

MSP shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Allowable Annual Emission for the Facility
(used to calculate the annual license fee)

| | PM | PM ₁₀ | SO ₂ | NO _x | CO | VOC |
|------------------|------------|------------------|-----------------|-----------------|------------|------------|
| Boilers | 2.13 | 2.13 | 15.96 | 15.96 | 1.90 | 0.13 |
| Generator #1 | 0.19 | 0.19 | 0.46 | 4.40 | 1.31 | 0.14 |
| Generator #2 | 0.19 | 0.19 | 0.46 | 4.40 | 1.31 | 0.14 |
| Total TPY | 2.5 | 2.5 | 16.9 | 24.8 | 4.5 | 0.4 |

ORDER

The Department hereby grants Air Emission License Minor Revision A-808-71-B-M subject to the conditions found in Air Emission License A-808-71-A-N, and in addition to the following conditions:

The following shall replace Condition (16) of Air Emission License A-808-71-A-N:

(16) Boilers

- A. Boilers #1, #2, #3, and #4 shall fire only #2 fuel oil with a maximum sulfur content not to exceed 0.3% by weight. Compliance shall be based on fuel receipts from the supplier showing the quantity of fuel delivered and the percent sulfur of the fuel. Records of annual fuel use shall be kept on a 12-month rolling total basis.
- B. MSP shall not fire more than two of Boilers #1, #2, or #3 simultaneously documented by recordkeeping including firing dates and times for each boiler.
- C. Emissions shall not exceed the following:

| Equipment | | PM | PM ₁₀ | SO ₂ | NO _x | CO | VOC |
|-----------|----------|------|------------------|-----------------|-----------------|------|------|
| Boiler #1 | lb/MMBtu | 0.04 | - | - | - | - | - |
| | lb/hr | 0.84 | 0.84 | 6.28 | 6.28 | 0.75 | 0.03 |
| Boiler #2 | lb/MMBtu | 0.04 | - | - | - | - | - |
| | lb/hr | 0.84 | 0.84 | 6.28 | 6.28 | 0.75 | 0.03 |
| Boiler #3 | lb/hr | 0.04 | | | | | |
| | lb/hr | 0.84 | 0.84 | 6.28 | 6.28 | 0.75 | 0.03 |
| Boiler #4 | lb/MMBtu | 0.04 | - | - | - | - | - |
| | lb/hr | 0.33 | 0.33 | 2.51 | 2.51 | 0.30 | 0.02 |

- D. Visible emissions from the combined stack of Boilers #1, #2, #3 and #4 shall not exceed 20% opacity on a 6-minute block average.

The following shall replace Condition (18) of Air Emission License A-808-71-A-N:

(18) Emergency Generators

- A. Facility shall limit Generator #1 and #2 to 200 hr/yr of operation for each generator (based on a 12 month rolling total). Hour meters shall be maintained and operated on the generators.
- B. A log documenting the dates, times, and reason of operation for the Emergency Generator shall be kept.
- C. The Emergency Generator shall fire #2 fuel oil with a sulfur limit not to exceed 0.3% by weight. Fuel records, including percent sulfur, shall be maintained.
- D. Emissions shall not exceed the following:

| Equipment | | PM | PM ₁₀ | SO ₂ | NO _x | CO | VOC |
|--------------|----------|------|------------------|-----------------|-----------------|-------|------|
| Generator #1 | lb/MMBtu | 0.12 | - | - | - | - | - |
| | lb/hr | 1.85 | 1.85 | 4.65 | 43.98 | 13.12 | 1.39 |
| Generator #2 | lb/MMBtu | 0.12 | - | - | - | - | - |
| | lb/hr | 1.85 | 1.85 | 4.65 | 43.98 | 13.12 | 1.39 |

- E. Visible emissions from Generators #1 and #2 shall each not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a continuous 3-hour period.

The following are New Conditions:

- (20) MSP shall not exceed a facility wide fuel limit of 804,000 gallons per year of #2 fuel oil with a sulfur content not to exceed 0.3% by weight.
- (21) MSP shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (Title 38 MRSA §605-C).
- (22) MSP shall pay the annual air emission license fee within 30 days of January 31st of each year. Pursuant to 38 M.R.S.A. Section 353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for revocation of the license under 38 M.R.S.A. Section 341-D, Subsection 3.

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(23) This amendment shall expire concurrently with Air Emission License A-808-71-A-N.

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2003.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 3/13/03

Date of application acceptance: 3/14/03

Date filed with the Board of Environmental Protection: _____

This Order prepared by Lynn Ross, Bureau of Air Quality.